

NOTICE TO SUBMIT RESPONSE

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Application No.: 10-2002-0057456

Title of the Invention: Method of fabricating semiconductor device having metal gate pattern

According to Article 63 of the Korean Patent Law, the applicant is notified that the present application has been rejected for the reasons given below. Any Argument or Amendment, which the applicant may wish to submit, must be submitted by June 28, 2004. An indefinite number of one-month extensions in the period for submitting a response may be obtained upon request, however no official confirmation of the acceptance of a request for an extension will be issued.

Reasons

The invention as claimed in claim 1 could have been easily invented by one of ordinary skill in the art prior to the filing of the application, and thus this application is rejected according to Article 29(2) of the Korean Patent Law.

1. The invention described in claim 1 is directed to a method of fabricating a semiconductor device having a metal gate pattern, comprising selectively oxidizing a silicon-containing material while suppressing oxidization of a metal layer included in a metal gate pattern to cure damage caused by an etch process for forming the metal gate pattern. Reference 1 (Korean Patent Laid-open Publication No. 1997-17969 dated 28 April 1997) provides a method of fabricating a semiconductor device, comprising forming a gate oxide layer on a semiconductor substrate, sequentially forming a TiN layer, a low-resistance metal layer, and a double insulating layer on the gate oxide layer, forming a

gate by etching the double insulating layer and the low-resistance metal layer, forming a first spacer by forming a nitride layer on the entire surface of the substrate and anisotropically dry etching the resultant structure, etching an exposed portion of the TiN layer under the first spacer, capping the gate by forming an oxide layer on the entire surface of the substrate, and curing a damaged gate oxide layer under the gate. Accordingly, based on the Reference 1, the invention could have been easily invented by one of ordinary skill in the art (Article 29(2) of the Korean Patent Law).

Enclosure: Korean Patent Laid-open Publication No. 1997-17969

28 April 2004

Jong-chan Kim/Examiner
Semiconductor
Electricity and Electronics Division
Korean Industrial Property Office

KOREAN PATENT ABSTRACT (KR)

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(54) Title of the Invention:

Method of fabricating semiconductor device

Abstract:

Provided is a method of fabricating a semiconductor device. The method includes forming a gate oxide layer on a semiconductor substrate, sequentially forming a TiN layer, a low-resistance metal layer, and a double insulating layer on the gate oxide layer, forming a gate by etching the double insulating layer and the low-resistance metal layer, forming a first spacer by forming a nitride layer on the entire surface of the substrate and anisotropically dry etching the resultant structure, etching an exposed portion of the TiN layer under the first spacer, capping the gate by forming an oxide layer on the entire surface of the substrate, and curing a damaged gate oxide layer under the gate.